

Homework 0

Q1)

a) 1. $f(x) = x^3 + 2x$ grows faster because the leading term x^3 grows faster than $7x^2$

b)

number 1 grows faster for the same reason as letter (a). (x^7 grows faster than x^6)

c)

number 2 grows faster, for the same reason as letters (a), (b). ($4x^9$ grows faster than x^{10})

Q2) a) $\log_2(x) = 8 \rightarrow x = 2^8$
 $x = 256$

c) $x = \log_4(32)$

$$x = \log_{2^2}(2^5)$$

b) $\log_5(x) = \log_5(2) + 2.5$

$$x = \frac{5^7}{2}, \text{ by } \log_{a^x}(a^y) = \frac{x}{y}$$

$$\log_{\frac{5}{2}}\left(\frac{x}{2}\right) = 2.5$$

$$\frac{x}{2} = 5^{2.5}$$

$$x = 2 \cdot (5^{2.5})$$

Q3) greetings = {"Rowdy", "Hello", "Hey"}